**SNC4M Unit Test Pathogens and Disease**

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| --- | --- | --- | --- | --- |
| **Knowledge** | **Application** | **Communication** | **Thinking/Inquiry** | **Total** |
| **/25** | **/7** | **/14** | **/15** | **/61** |

Please read all questions before you start the test.

**Part A: Multiple Choice** (10 marks, K/U) **Answer these on the SCANTRON sheet provided**

Choose the best answer.

1. Microorganisms that are disease producing are called:
   1. Pathogens
   2. Toxins
   3. Communicable
   4. Strains
2. Having a client infected by a microorganism from a health care worker is called:
   1. Medical asepsis
   2. Cross infection
   3. Reinfection
   4. Self-inoculation
3. One of the easiest and most effective ways to keep from transmitting diseases in the home is:
   1. Keep all contaminated materials together
   2. Disinfect spores
   3. Wear gloves, a gown and a mask
   4. Practice proper hand washing
4. Two blood borne pathogen diseases which require special precautions to lower the chances of transmission from client to health care worker are:
   1. Pneumonia and AIDS
   2. Anemia and AIDS
   3. AIDS and hepatitis B
   4. Meningitis and hepatitis
5. The concept that prevents conditions that allow pathogens to live, multiply, and spread is called:
   1. Non-transmittable
   2. Medical asepsis
   3. Standard precautions
   4. Sterilization
6. Which of the following refers to the total number of individuals infected in a population at any one time?
   1. Morbidity rate
   2. Prevalence rate
   3. Infection rate
   4. Mortality rate
7. Which of the following is not a bacterial shape
   1. Rod
   2. Spherical
   3. Cone
   4. Spiral
8. Standard precautions are practiced:
   1. Only for clients with communicable diseases
   2. Only for clients with AIDS or hepatitis b
   3. All clients
   4. Only for clients with drainage from any part of the body
9. Macrophages are specialized types of white blood cells that destroy pathogens by
   1. injecting enzymes onto the surface of the pathogen which makes it easily detected by immune cells
   2. engulfing the pathogen and using enzymes to destroy both cells
   3. attaching to the outside surface of the pathogen and then destroying the pathogen using enzymes
   4. attaching to pathogens and guiding them into the lymph nodes so they can pass into the blood
10. One of the most common methods of transmission from a health care worker to a client is:
    1. Health care worker’s hands
    2. Food left at room temperature too long
    3. Contaminated needles
    4. Unclean bed linens

**Part B: Short Answer** (20 marks overall)

1. What are the two different types of virus reproduction? Contrast these two types by listing two specific ways in which they differ.  
    (3 marks K/U, 2 marks C)

1. You are a female native African and have contracted AIDS. Write a short letter to a non-governmental agency asking for support. Address the agency by name and include your knowledge of their organization in how you feel they can support you. (3 marks, C)  
     
     
     
     
     
     
     
     
     
     
     
     
     
     
     
     
   1. Outbreak! A new and dangerous flu strain has been discovered in various hospitals around the city. You have been assigned the task to create a vaccine for it. Describe what a vaccine is, the process you would follow to create it and why it would work.  
      (6 marks, T/I)
   2. While you are creating the vaccine you need to ensure that a pandemic is not created. Describe steps and protocols you would use to avoid a pandemic. (2 marks, A)

1. In our “Hidden Nasties” lab, we determined that wallets have the most bacteria on them. Does this mean that you will get sick if you touch your wallet? Why or why not; explain your answer! (2 marks A, 2 marks C)

**Part C: Matching** (7 marks, K/U)

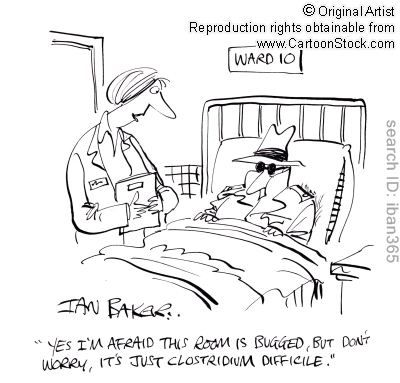
15. Match the terms on the right, with the definitions on the left:

|  |  |  |  |
| --- | --- | --- | --- |
| A | Antibiotic | 1. \_\_\_\_ | Free from disease-causing contaminants |
| B | Aseptic | 2. \_\_\_\_ | A plasmid that transfers genetic material from one organism to another |
| C | Parasite | 3. \_\_\_\_ | Development of a disease |
| D | Pathogenesis | 4. \_\_\_\_ | Inhibits the growth of microorganisms |
| E | Vector | 5. \_\_\_\_ | Methicillin-resistant *Staphylococcus aureus* |
| F | Vaccine | 6. \_\_\_\_ | An organism that lives in or on another and benefits from the other at their expense |
| G | MSRA | 7. \_\_\_\_ | Used to stimulate the immune response before a real disease attack |

**Part D: Long Answer**  (24 marks overall)

1. In class, we did an activity based on disease transfer involving handshakes. Pick ANOTHER type of disease transfer, and give 3 ways to avoid contamination. (3 marks T/I, 3 marks C)

1. List 3 EXTERNAL and 2 INTERNAL ways that the body defends itself. Pick one from each and explain it in-depth. (5 marks K/U, 4 marks C)
2. Hypothesize as to what the next big “outbreak” disease will be. Provide 3 arguments and summarize what the disease does, why you think it will be “next”. (3 marks A, 6 marks T/I)



*Answer Key*

**Part A: Multiple Choice** – 10 marks (K/U)

1. A
2. B
3. D
4. B
5. D
6. B
7. C
8. C
9. B
10. C

**Part B: Short Answer**

1. 1 mark for correctly naming the two cycles as lytic and lysogenic (K/U)  
   1 mark for each correct difference (K/U)  
   Differences between lytic and lysogenic cycles:
   1. Lytic cycle causes cell lysis/ destruction whereas lysgogenic does not
   2. Lytic cycle can lead to 100-200 progeny phages whereas lysogenic cycle mostly produces no progeny
   3. Lytic cycle cannot be converted to the lysogenic cycle whereas the lysogenic cycle can be converted to the lytic cycle through the addition of chemical or physical agents

2 marks - for answering in full sentences that use proper terminology, C)

*(3 marks K/U, 2 marks C)*

1. 1 mark for listing of agency – Stephen Lewis foundation would be most likely. Doctors without Borders would also be acceptable.  
   1 mark for description of what they do – Stephen Lewis foundation specifically helps mothers, grandmothers, families and those infected with AIDS in Africa, especially those caring for orphaned children. Doctors without borders provide medical care across the globe, especially in impoverished countries  
   1 mark for style and presentation  
     
   *(3 marks, C)*
2. 2 parts
   1. 1 mark – Vaccines are a biological preparation designed to create immunity in the host of a particular disease  
      3 marks – For a description that involves an experimental process where variations of the microorganism are released to animals where the microorganism is killed or attenuated  
      2 marks – for a description that mentions the creation of antibodies in a persons system to combat that specific microorganism

*(6 marks, T/I)*

* 1. 1 mark – mention of quarantine  
     1 mark – determination of spread and medical aseptic techniques
  2. Also acceptable would be research in determination of origin  
     There may be other acceptable measures placed here

*(2 marks, A)*

**Part C: Matching** (7 marks, K/U)

1. B
2. E
3. D
4. A
5. G
6. C
7. F

**Part D: Long Answer**

15. Examples could include:

- Indirect contact (surface contamination) 1. Wash hands, 2. Sanitize surfaces, 3. Avoid using other people’s stuff

- Droplet contract (bodily fluid transfer) 1. Avoid close contact, 2. Wear a facemask, 3. Immunization

- Airborne transmission 1. Facemask, 2. Reduced use of air conditioners and air circulators, 3. Avoid close contact.

- Fecal-oral route 1. Hand washing, 2. Sanitize surfaces, 3. Proper food handling techniques

1 mark – for each type of avoidance (3 marks T/I)

1 mark – for each use of correct vocabulary (sanitize, antibiotic, etc) (3 marks C)

*(3 marks T/I, 3 marks C)*

16.

1 mark – for stating why or why not (1 mark C)

1 mark – for mentioning contamination does not equal disease (1 mark A)

1 mark – for mentioning that bacteria must enter your body before disease occurs, or mentioning the human immune response and its external factors (skin pH, tears, saliva, etc) (1 mark A)

1 marks – for explaining answer in correct sentence format, using proper vocabulary (1 mark C)

*(2 marks A, 2 marks C)*

17.

5 marks – listing 3 external and 2 internal body defences

External : human skin, pH, mucus membranes, antimicrobial proteins, competition

Internal: Macrophages, neutrophils, natural killer cells, leukocytes, histamine response

2 marks – for explaining 1 internal and 1 external immune defence, mentioning how it works and why it works (4 marks C)

*(5 marks K/U, 4 marks C)*

18.

1 mark – for each argument (3 marks A)

1 mark – for each proof behind the argument (3 marks T/I)

1 mark – Picking a disease (1 mark T/I)

1 mark – Introducing what the disease does (1 mark T/I)

1 mark – summarizing why it will be “next” ( 1 mark T/I)

*(3 marks A, 6 marks T/I)*